### UNITED STATES PATENT AND TRADEMARK OFFICE **CERTIFICATE OF CORRECTION**

PATENT NO.

: 6,911,108 B2

APPLICATION NO.: 10/037414

DATED

: June 28, 2005

INVENTOR(S)

: Sarmiento

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page consisting of Fig 1a should be deleted and replaced with the attached title page

### In the Drawings

FIG. 1a, Sheet 1 of 12

Delete Drawing Sheet 1 and substitute

Page 1 of 5

therefore the Drawing Sheet,

consisting of Figs. 1a and 1b, as shown

on the attached page

Fig. 7a, Sheet 7 of 12

Delete Drawing Sheet 7 and substitute

therefore the Drawing Sheet,

consisting of Figs. 7a and 7b, as shown

on the attached page

### In the Claims

Column 9, line 36, Claim 1

Delete "or",

Insert --of--

Column 9, line 57, Claim 6,

Before "prescribed interval",

Insert --a--

Column 10, line 11, Claim 13

Delete ","

Column 10, line 16, Claim 15

Delete ","

Column 10, line 19, Claim 15

Delete "non coherent", Insert --non-coherent--

Column 10, line 31, Claim 15

Delete "hear", Insert --heat--

Column 10, line 40, Claim 16

Delete "The apparatus of claim 15,",

Insert -- An apparatus as in claim 15,--

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PATENT NO. : 6,911,108 B2 Page 2 of 5

APPLICATION NO.: 10/037414
DATED: June 28, 2005
INVENTOR(S): Sarmiento

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 12, line 19, Claim 42 Delete "and",

Insert --or--

Column 12, line 23, Claim 44 Delete "poser",

Insert --power--

Column 12, line 26, Claim 45 Delete "lense",

Insert --lens--

Column 12, line 29, Claim 46 Delete "lense",

Insert --lens--

Signed and Sealed this

Third Day of October, 2006

JON W. DUDAS
Director of the United States Patent and Trademark Office

## (12) United States Patent

Sarmiento

(10) Patent No.:

US 6,911,108 B2

(45) Date of Patent:

Jun. 28, 2005

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(54)	PHOTON WELDING DEVICES	FOR
	JOINING PLASTIC PARTS	

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(US)

(73) Assignee: Quantum Group, Inc., San Diego, CA

(US)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 10/037,414

(22) Filed: Jan. 4, 2002

(65) Prior Publication Data

US 2003/0094240 A1 May 22, 2003

Related U.S. Application Da
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(60)	Provisional 2001.	application	No.	60/260,012,	filed	on	Jan.	6,
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(51)	Int. Cl.7	B32B 31/20
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Field of Search ...... 156/379.6, 379.8,

156/580, 272.2; 219/243, 385; 250/504 R; 362/551, 580, 581

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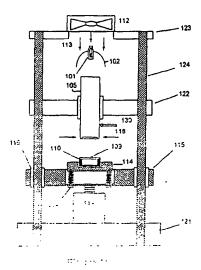
\* cited by examiner

Primary Examiner—John T. Haran (74) Attorney, Agent, or Firm—Christie, Parker & Hale, LLP

#### (57) ABSTRACT

Photon welding devices of this invention comprise a non-coherent photon source, and a light pipe coupled to the photon source at one end. A thin mask is positioned at another end of the light pipe that defines a weld location for photon delivery. A work piece to be bonded by the device comprises a top layer of transparent plastic and a base layer of absorbing plastic. The thin mask is in the form of a reflective coating positioned on the end of the light pipe over all surfaces that are not in contact with the work piece. A device includes a member that imposes a controlled, compressive force to the work piece while it is being welded and during a short time thereafter. The device also includes a member that maintains a desired alignment of the light pipe, top layer of the work piece, and base layer of the work piece during the bonding cycle.

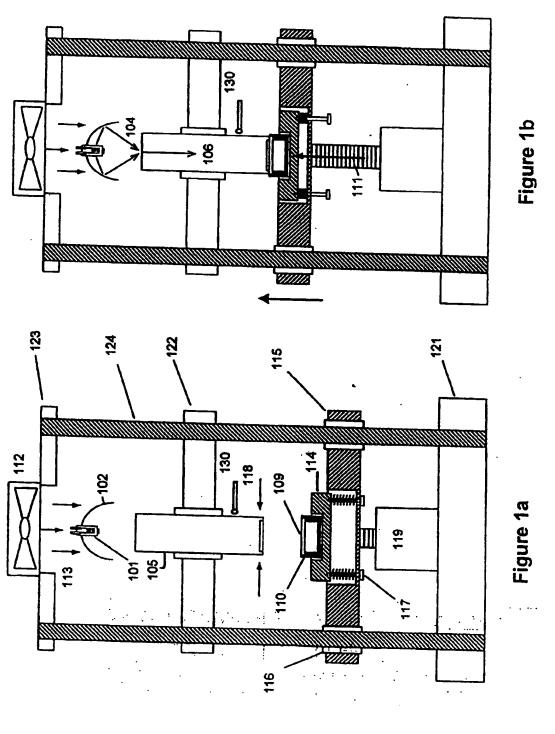
48 Claims, 12 Drawing Sheets



U.S. Patent

Jun. 28, 2005

Sheet 1 of 12



U.S. Patent

Jun. 28, 2005

Sheet 7 of 12

6,911,108 B2

